

*TC Maintenance
&
Safety Check*



TC MAINTENANCE AND SAFETY CHECK

Do-It-Yourself Mechanical Checks

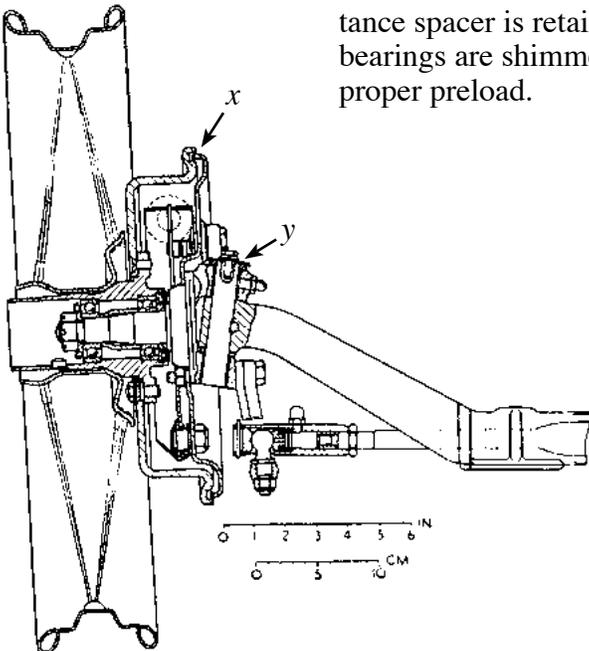
(As of August 27, 2005)

This list was originally assembled by Mike Goodman with the TC Motoring Guild in 1993. It is a work in progress and we welcome any additions, corrections and any improvements to make this more complete and up to date. Please send any comments and suggestions to David Edgar, ph: 619-593-8255 or email: djedgar@pacbell.net so that they can be added on.

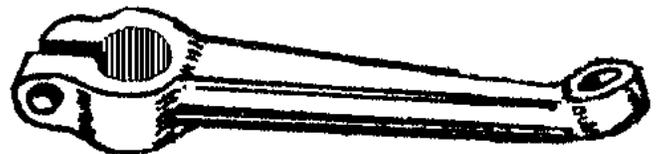
I - UNDER CAR

A. Front Suspension

1. Wheels & tyres -(all five)
 - a. Check for loose or broken spokes
 - b. Check splines – keep a film of grease on splines at all times. Worn splines can damage hub.
 - c. Check tyres for wear and age cracking.
 - d. Check tyre inflation.
2. Front hubs
 - a. Check for looseness between brake drum and backing plate (*x* in diagram), using tire for leverage. Don't confuse with loose kingpins where entire assembly moves.
 - b. Remove knockoff and check condition of bearing grease. If runny, repack.
 - c. Washer behind nut should be cupped out with only the center touching center race of wheel bearing.
 - d. Tapered bearings are not advisable unless center distance spacer is retained and bearings are shimmed for proper preload.



3. King pins
Check for movement between kingpin and bushing (*y* in diagram). There should be none.
4. Spring bolts to front axle
 - a. They should be tight and should have double nuts.
 - b. There should be a plate on top of the axle attached to the spring bolts.
 - c. Rebound rubber above the axle must be intact.
5. Steering rods
 - a. Check for looseness in the ball ends. (They are spring loaded and the springs break.)
 - b. Note that of the 4 tie rod ends, the one connecting to the pitman arm is different and assembled different. This one joint hangs below the ball. Use of the wrong joint here can be disastrous.
 - c. All cotter pins must be in place.
6. Steering gear
 - a. Make sure all mounting bolts especially the large bolt at the frame bracket are tight.
 - b. Grab pitman arm attached to the steering box. There should be no movement fore and aft. If there is, steering box is worn and must be overhauled.



- c. Pitman arms can crack. Inspect so you don't have a sudden loss of steering. Cracks are not always visible so if in doubt have it professionally inspected.

- d. Pitman arm should be secured with a grade 8 bolt with an aerotight (all metal) self-locking nut (8 mm or 5/16" diameter). Torque to 33 ft. lbs. Replace bolt and nut if it is at all questionable.
- e. Turn steering wheel. Observe play in relation to steering arm movement. Adjust steering gearbox play with shims to minimize but not create binding.

7. Front springs

- a. Front spring bolt - keep this bolt well lubed as the spring rides on it.
- b. Check rubbers at the rear shackles. If they are bad replace. (Urethane bushings are now available as a substitute replacement.)

8 Front shock absorbers

- a. Connecting links
 - (1) Make sure links are tight with good bushings.
 - (2) If the link keeps pulling out, drill a hole on the outer part of the link pin and insert a flat washer and cotter key to secure.
- b. The shock was mounted to the frame with a flat plate approximately one-quarter inch thick to go between the shock absorber and the frame. This plate was to align the shock link. The cars with band bumpers used the thickness of the bumper bracket as this spacer. One or the other must be in place.

B. Rear end Assembly

1. The spring mounts on the housing crack at the bottom where the spring attaches.
2. Pinion flange
 - a. There should be no movement in any direction. If there is, tighten the nut on the pinion flange. (This will necessitate detaching the drive shaft for access.)
 - b. The drive shaft securing bolts should be of grade 8 - aircraft quality with either self locking nuts or castellated nuts with cotter keys.

3. Hubs

- a. If wheel moves in a lateral direction, there is a problem.
 - (1) Axles must be tight in the hubs. **DO NOT** weld the assembly. Replace with either modified assembly or new axles and/or hubs.
 - (2) Bearings must be tight in the inner hubs. Bearing is pressed in and held in position by the boss on the outer hub. If there is a space between these two parts, shimming will be necessary.
 - (3) Inner bearing nut must be tight and secured with tab washer.

NOTE - Oil leaks are hard to stop at the rear hubs. The housing can be modified to remedy this problem.

4. Rear springs - All rubbers should be good shape and spring clamp assemblies intact.

C. Exhaust system

1. This system, unique to the TC, is mounted rigid to the chassis utilizing a flex section in the front pipe between the engine and the chassis to allow for movement.
 - a. Check flex for cracks.
 - b. Check mounts at muffler to chassis.
 - c. Check integrity of bracket from head pipe to bell housing.
 - d. Check clamp at rear of tail pipe to chassis.

D. Transmission

1. Check bell housing for cracks on right hand side where shaft and lever arm protrude.
2. Check transmission mounts. Has oil caused the rubber to deteriorate?
3. Check rear transmission casting for cracks on right side.

E. Brakes

1. Check hoses, master cylinder and backing plates for brake fluid leakage. Replace hoses if old and brittle.
2. Check that brake lines are secured to frame at proper points.

3. Pull brake drum off and check brake lining. Replace lining if thickness is same or less than metal it is bonded to (or if it is riveted, if lining surface is close to the rivet heads).
4. Are brake shoes adjusted properly? Adjust so you just faintly hear the shoes brush the drums but don't drag.
5. Depress brake pedal.
 - a. Are brakes firm and hold pressure with continued pedal pressure?
 - b. Pump brake pedal to see if pedal becomes firmer. If it does you have air in system.
6. Handbrake
Does the handbrake hold? Adjust if necessary.

II - ENGINE COMPARTMENT

A. Motor mounts.

Check that they are in good condition.

B. Water Pump

1. Check for run out at pulley and for play. There should be neither.
2. Check for coolant leaks.

C. Fan Blades

1. Check the fan blades for wobble and cracks.
2. The blade support stiffeners should be on the front (radiator side) of the blade.

D. Coolant

1. Check hoses and core plugs for leakage.
2. Do both drain plugs operate and release coolant or are they plugged?
3. Is coolant fairly clear and free of rust? Flush and replace coolant mixture if necessary. Never exceed a 50-50 mixture in the winter and 10-15% is plenty in summer.

E. Generator

1. Check the mounting bolts for tightness.
2. Check the belt pulley for cracks (the aluminum ones are known to separate.)
3. Remove tach reduction box from generator. Insert a round punch into rear of generator lifting the armature. There should be no

internal movement. If there is, replace the rear bushing. (When this bushing wears, the armature will whip causing damage to the armature and the tach reduction box.)

4. Check the fan belt for cracking, oil soaking and adjustment.

F. Distributor

1. Upper body should be tight to the base.
2. Screws that hold the point plate to body should be checked for tightness regularly.
3. A ground wire should be attached between the distributor clamp bolt and the generator bracket. (most TCs are missing this)
4. Rotor shaft assembly should turn approximately 15 degrees and spring back. If it does not, check the distributor cam to shaft and see if it is frozen. It can be freed up by using WD40 and a little care.
5. Check inside a distributor cap for electrical tracing. If tracing is evident replace the cap.
6. Look at distributor cap and high tension wires under darkness. Look for arcing indicating a breakdown in insulation.

G. Oil Filter

1. Make sure the clamp assembly is around the filter and tight. Otherwise the oil filter assembly will vibrate and crack the oil lines.
2. Visually examine oil lines for cracks.

H. Check oil gauge line for leaks.

I. Carburetors and manifolds

1. Check four manifold clamp bolts for tightness.
2. Check the fuel lines. If the fuel lines with the blue stripe are on the car, replace them. Today's gasoline will destroy the rubber inside them causing them to leak.
3. Periodically check the bolt that holds the float bowl to the carburetor body, and tighten if necessary.
4. Check the throttle shaft for excessive play. Air can be drawn in affecting the fuel mixture.

III - ELECTRICAL

A. Wiring harness

1. Harness should be properly secured and no loose wire endings floating around.
2. The wiring going to the front fenders must be routed carefully to clear the axle movement. The wiring coming out of the fender support tube to the parking lights must be clamped tight or the tire will rub through the insulation.

B. Lamps

1. Check all lamps to see that they operate as intended. Don't forget the dipper switch.
2. Clean all lamp lenses. Clean lenses allow more light through and TC lighting needs all the help it can get.

C. Generator

Rev engine and see if amp meter rises.

IV - BODY

A. Door locks and doors

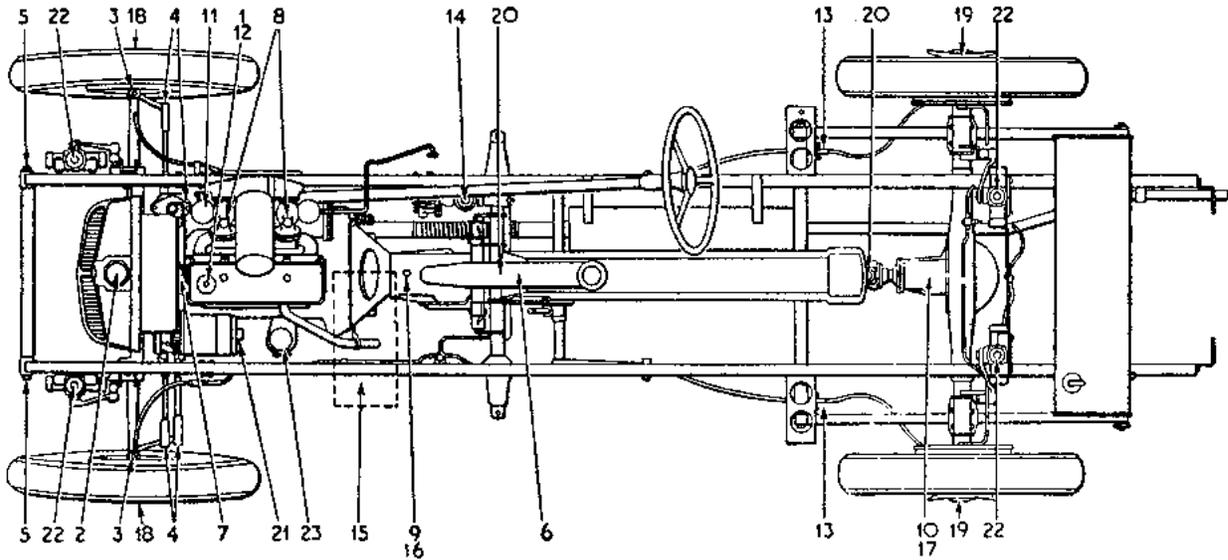
1. The door striker on the body is attached with two machine screws on the inner holes to a floating threaded plate between the body skin and the wood. These screws must be kept tight.
2. The lower door hinge screws at the body are wood screws. If they will no longer hold in the wood, you have several options.
 - a. You can drill through the body into the fender area and secure with machine screws and nuts.
 - b. You can drill out wood and glue in a dowel rod and then re-drill for new wood screw.
 - c. You can use threaded inserts found at most hardware stores, then thread in $\frac{1}{4}$ " x 20 machine screws giving you a very strong blind hole fastening.

B. Windows and mirrors

1. Clean windscreen for a nice clear view.
2. Clean and adjust rear view mirrors for a nice clear view.
3. Hood and side screens - check eisenglas for clarity.

TC Maintenance Diagram

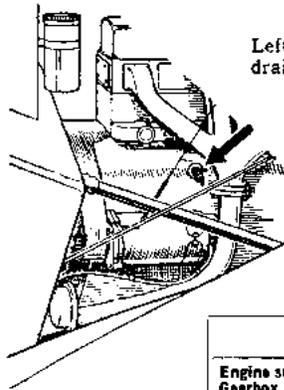
M.G. MIDGET, TC SERIES, MAINTENANCE DIAGRAM



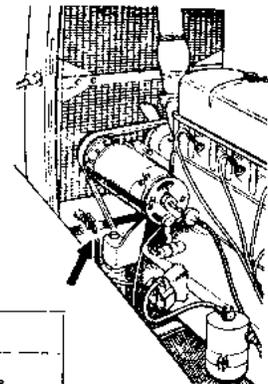
KEY TO MAINTENANCE DIAGRAM

- DAILY**
- 1. Engine sump } Top up
 - 2. Radiator
- EVERY 500 MILES**
- 3. King pin bearings (4)
 - 4. Steering ball joints (4)
 - 5. Front spring anchor pins (2) } Grease gun
 - 6. Propeller shaft splines (1)
- EVERY 1,000 MILES**
- 7. Fan bearings—Grease gun
 - 8. Carburettor dashpots—Oil can
- EVERY 2,000 MILES**
- 9. Gearbox
 - 10. Rear axle
 - 11. Steering box (nipple) } Top up
- EVERY 3,000 MILES**
- 12. Engine sump—drain and refill
 - 13. Brake cables—grease gun
- EVERY MONTH**
- 14. Brake fluid tank } Top up
 - 15. Battery
- EVERY 6,000 MILES**
- 16. Gearbox } Drain and refill
 - 17. Rear axle
- EVERY 10,000 MILES**
- 18. Front hubs—pack with grease
 - 19. Rear hubs (2) } Grease gun
 - 20. Propeller shaft joints (2)
 - 21. Rev. counter reduction gear box - Gear oil
 - 22. Shock absorbers—top up
 - 23. Engine oil filter—renew

DRAINING POINTS



Left : cylinder block drain tap, offside front



Right : Radiator drain tap on nearside

FILL-UP DATA

Engine sump	9 pints
Gearbox	1½ pints
Rear axle	2 pints
Cooling system	14 pints
Petrol tank	13½ gallons
Tyre pressures : front	24 lb
rear	26 lb

Engine - Owners manual calls for 30 weight in warm temperatures (down to 32° F) and 20 weight (down to 0° F). Many current owners seem to be happy with a 20W-50 multigrade oil now.

Gearbox, Steering Gearbox and Rear Axle

SAE 140 GL-4 type gear oil is what you want here. It is friendly to the copper, brass and bronze in our transmissions and differentials. DO NOT USE Hypoid oil (rated GL-5) as it has additives to help it deal with the extremely high pressure and sliding action encountered in hypoid gears. Those additives are known to be corrosive to the yellow metals in our gearbox.

For the steering gearbox, some have found a 600 weight used in Model As, or Steering Box Grease for old VW beetles or a product called Penrite works better than the 140 oil.

Wheel Hubs, and Fan Bearings

Use a grease designed for wheel bearings. Many replacement waterpumps on the market now use pre-lubed, sealed bearings and do not have a grease fitting now.

Chassis Greasing Nipples - Most common auto greases are fine.

Cables and Control Joints - Most common auto greases are fine.

Carburetor dashpots - 20 weight oil